

SUNDAY RIVER BRIDGE  
(Artist's Bridge)  
National Covered Bridges Recording Project  
Spanning Sunday River  
Newry vicinity  
Oxford County  
Maine

HAER ME-69  
*ME-69*

PHOTOGRAPHS

WRITTEN HISTORICAL AND DESCRIPTIVE DATA

REDUCED COPIES OF MEASURED DRAWINGS

FIELD RECORDS

HISTORIC AMERICAN ENGINEERING RECORD  
National Park Service  
U.S. Department of the Interior  
1849 C Street NW  
Washington, DC 20240-0001

# HISTORIC AMERICAN ENGINEERING RECORD

## SUNDAY RIVER BRIDGE (Artist's Bridge)

HAER No. ME-69

LOCATION: Spanning Sunday River, Newry vicinity, Oxford County, Maine  
UTM: 19.353446E.4928213N, Bethel, Maine Quad.

DATE OF CONSTRUCTION: 1872

STRUCTURAL TYPE: Paddleford truss

DESIGNER/BUILDER: Hiram York

PRESENT OWNER: Maine Department of Transportation

PREVIOUS USE: Public road bridge until 1958

PRESENT USE: Cultural resource

SIGNIFICANCE: Sunday River Bridge is a very well executed specimen of the bridge truss designed in the 1840s by Peter Paddleford of Littleton, New Hampshire. This truss became the dominant style in covered bridge construction throughout much of northern New England, but has received little attention from historians, perhaps because it was never patented. The bridge is also notable as an example of sympathetic restoration.

HISTORIAN: Joseph D. Conwill, Editor, *Covered Bridge Topics*, July 2002.

PROJECT INFORMATION: The National Covered Bridges Recording Project is part of the Historic American Engineering Record (HAER), a long-range program to document historically significant engineering and industrial works in the United States. HAER is administered by the Historic American Buildings Survey/Historic American Engineering Record, a division of the National Park Service, U.S. Department of the Interior. The Federal Highway Administration funded the project.

**Chronology**

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|-----------|--|
| 1785      | Birth of Peter Paddleford                                |
| 1805      | Incorporation of the Town of Newry                       |
| 1811      | First bridge at the Sunday River site                    |
| 1840s     | Peter Paddleford develops the Paddleford truss           |
| 1859      | Death of Peter Paddleford                                |
| 1870      | First covered bridge at the Sunday River site            |
| 1870      | Covered bridge destroyed by a windstorm                  |
| 1872      | Construction of the present bridge                       |
| 1958      | Sunday River Bridge is bypassed and removed from service |
| 1958-1959 | Restoration of the Sunday River Bridge                   |

## **Newry, Ketchum, and the Sunday River Region**

Newry is part of a large region of northwestern Maine that first saw white settlement just after the American Revolution, but the town was not incorporated until 1805.<sup>1</sup> Bear River and Sunday River run through Newry from northwest to southeast forming distinct districts for settlement.

West of Newry is Riley Township, which is accessed through the Sunday River valley. It was settled shortly before 1860, but remained sparsely populated. Riley briefly had a post office whose name was Ketchum. The road up the valley across Sunday River Bridge was long known as Ketchum Road, but is now named Sunday River Road.<sup>2</sup>

## **Early Bridges over Sunday River**

At Newry's incorporation in 1805, the first highway surveyors accepted three roads. One ran the length of the Bear River valley. The other two generally followed Sunday River on opposite sides of the stream, but there was a gap in between with no road or bridge.

Newry voted in 1808 to bridge Sunday River, and payment for the work was made in 1811. The bridge was probably a primitive stringer type with a trestle bent in the middle. In the first half of the nineteenth century Maine experienced repeated trouble with poorly built bridges and frequent washouts, and Newry was no exception. The town voted either to repair or replace Sunday River Bridge several times before the famed "Pumpkin Freshet" of 1869. The site was then known as Joel Foster Bridge from the adjacent landowner to the southwest.<sup>3</sup>

On October 4, 1869, much of northern New England suffered from a terrible flood that caused widespread destruction. In Maine it coincided with pumpkin harvest, and large numbers of these picturesque fruits floated down streams, leading to the nickname, the "Pumpkin Freshet." Sunday River (or Joel Foster Bridge) was a casualty of the flood. Residents resorted to a temporary ford, but quickly voted on October 15, 1869, to build a new bridge, choosing as supervisors Levi R. Paine, A.N. Stow, and Nathan S. Barker.

The new bridge was finished around February 1870. It was covered and described as

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<sup>1</sup> Excellent background material on Newry may be found in two books, both by women named Wight: Carrie Wight, *Newry, Maine 1805-1955* (Bethel: The Oxford County Citizen, 1955), and Paula M. Wight, *Newry Profiles 1805-1980* (no date or other information, probably published by author).

<sup>2</sup> It was still named Ketchum Road at the time of my first visit in 1972, and for several years thereafter.

<sup>3</sup> Despite heavy development in town occasioned by the Sunday River ski resort, the covered bridge site is still tranquil and a Foster still lives at the old homestead.

“expensive” and “a fine structure.” The builder’s name is given variously as Nahum W. Mason, or Nason. The bridge lasted only eight months before being completely destroyed by a windstorm on October 28, 1870.<sup>4</sup> The builder Mason is not well documented, but someone of this name is credited with two other area bridges: Porter Bridge, between Rumford and Mexico, which blew down in November 1900; and the existing Bennett Bridge of Lincoln Plantation, which has also experienced wind trouble over the years.<sup>5</sup>

At a special town meeting held on November 7, 1870, Newry voted to rebuild.<sup>6</sup> At first the voters decided on a simple trestle bridge, probably because of cost. Some of the town agents selected to oversee the project refused to build a bridge of this type. The voters then decided on a covered truss bridge, to be at least a foot and a half higher than the previous one.<sup>7</sup> At length, John F. Eames, J.F. Kilgore, and possibly also Ephraim McKusick were chosen as agents for the project. They were empowered to proceed, but were urged to re-use such of the old timber as was suitable.

The bridge committee records are not available, but we know from other sources that Hiram York was chosen as builder.<sup>8</sup> He had submitted an estimate for the 1870 project, which was rejected in favor of Mason’s. York’s career is not well known, but he built other area bridges, and was probably involved somehow with the construction of the large Bethel Toll Bridge over the Androscoggin River in 1868-1869.<sup>9</sup> He completed the present Sunday River Bridge in 1872, framing the trusses first in a nearby field. Levi Eames and other local residents also worked on the bridge.

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<sup>4</sup> Oxford *Democrat* (Paris, Maine), Feb. 4, 1870 and Nov. 11, 1870. The newspaper gives the name as N.W. Nason of Grafton. See also Martha Fifield Wilkins, *Sunday River Sketches: A New England Chronicle* (Rumford, Maine: Androscoggin Publications, 1977) who says Nahum Mason of Northwest Bethel. The names Mason and Nason are both found in the area today, but since other bridges are credited to Mason, this seems more likely.

<sup>5</sup> See Joseph Conwill, “Maine’s Covered Bridge Past—Oxford County,” *Covered Bridge Topics*, Summer 2001, 8-15.

<sup>6</sup> I would like to thank Sylvia Gray of the Newry Town Office for providing copies of minutes of this important meeting.

<sup>7</sup> It is not described specifically as covered, but was to be “like the one over Bear river at Newry Corner, of the same sized timber throughout.” This is known to have been a covered Paddleford truss, probably built in 1869 by Hiram York, although the record is not completely certain.

<sup>8</sup> From oral history, chiefly a 1939 interview with adjacent landowner Celdon Foster: see Wilkins, pp. 10 ff.

<sup>9</sup> Most accounts credit Bethel Toll Bridge to Hiram York, but there is not complete agreement. See the continuation of Joseph Conwill, “Maine’s Covered Bridge Past- - Oxford County” *Covered Bridge Topics*, Fall 2002, p. 6.

“Three dollars a day plus board” is often quoted as pay for working on Sunday River Bridge, but I have not included this in my text because it appears uncertain whether the figure applied to York, or to his workmen.

## Structural Details

Sunday River Bridge is a Paddleford truss, measuring 97' end post to end post at the floor. The housing extends about 14" further. The top chord is overhung 3'-7" past the end post and gives some extra protection against wind-driven rain; its length is about 104'-2". The truss has eleven load-bearing panels plus a stiffener panel at each end for a total of thirteen. The center, therefore, is an entire panel, not a post.

The sizing of the posts varies roughly with the load, and this feature is occasionally, but by no means always, found in other Paddleford trusses.<sup>10</sup> At the center they measure 8-1/2" x 8-3/4", and at the ends, 9" x 11-5/8". The braces measure 8-3/4" x 5-3/4" throughout, with random manufacturing variations of about 1/4". Counterbraces are also of uniform dimension, generally 3-3/4" x 5-3/4" with small random variations. The counterbraces are fixed across the posts with 1-1/4" trenails and a shallow mortise.

Both top and bottom chords are built up of five vertical leaves of 3" plank, with the posts and counterbraces mortised through the planes between the planks. There is no gap between the planks, and in this feature Sunday River Bridge is better framed than many North Country Paddleford trusses. A common practice is to leave a gap in the middle of the top chord. It is bridged by copious treenailing, but can contribute to problems with wind racking. Hiram York's practice is superior.

The floor beams are not original, but probably closely match the original configuration. They are of 3" x 10" timber on edge, atop the chords. The spacing varies to avoid various truss members, but is generally six per panel. The floor planks are directly on the floor beams, with no stringers. They measure 1-5/8" x 7-1/2", reflecting the standard size of sawn dimension lumber at the time of the 1958-1959 restoration.

## Repair Record

Sunday River Bridge saw major repair work in 1923-24, but after that it remained largely unchanged until around 1950.<sup>11</sup> At that point the original semi-elliptical portals were sawed off higher with diagonal corners, to admit larger vehicles. The bridge remained in service until bypassed by a new bridge in 1958, but the Maine Department of Transportation still maintains it.<sup>12</sup> Once bypassed, it was restored, and the old arched profile of the portal was rebuilt, with a

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<sup>10</sup> Field notes of May 31, June 18, and June 20, 2002.

<sup>11</sup> The repairs probably involved the deck (including floor beams) and housing, but were extensive enough that some old State Highway Commission records listed the bridge as having been built in 1923.

<sup>12</sup> By a state law passed in the late 1950s, all Maine covered bridges are maintained by the state's Department of Transportation, even if they are no longer in service.

slight change. The original design had vertical boarding over the entry, but diagonal boarding where the eaves project beyond the trusswork. The restored portal has vertical boarding throughout. The trusswork is largely original, but a few members have been replaced, including a section of lower chord in 1970.<sup>13</sup>

### **The Artist's Bridge**

Sunday River Bridge has long been known as the Artist's Bridge and is named as such on old postcards. Historians have noted that more paint was applied to canvas than to the bridge itself, a safe statement, since so far as we know, the bridge has never been painted. One artist in particular is associated with the site: John J. Enneking (1841-1916), who summered nearby at North Bethel and often sketched in the vicinity of the bridge.<sup>14</sup> Apparently he never used the bridge itself as a subject, although many other people have done so.<sup>15</sup>

### **Peter Paddleford**

Sunday River Bridge is an excellent example of the bridge truss developed by Peter Paddleford of Littleton, New Hampshire. Paddleford was one of the most important bridge builders and millwrights in northern New England during the 1830-1850 period, but documentary sources on his career are surprisingly slim.<sup>16</sup> Born at Enfield, New Hampshire on September 14, 1785, he moved north as a young man, spending several years in Lyman before relocating to Littleton in 1830.<sup>17</sup> In 1833 he was called to Montréal to give an estimate for an immense bridge to cross the rivière des Prairies from the northeast tip of Montréal Island over to the mainland at Repentigny. His proposal called for a 3,750' twenty-six span, two-lane bridge of Town lattice design, with arches added at some points.<sup>18</sup> Unfortunately the bridge was not built because it was too

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<sup>13</sup> *Highway News* (Maine Department of Transportation), April 1970, p. 4. Thanks to Philip M. Wentzel for bringing this source to my attention.

<sup>14</sup> Randall H. Bennett, *Oxford County, Maine: A Guide to its Historic Architecture* (Bethel: Oxford County Historic Resource Survey, no date).

<sup>15</sup> Randall H. Bennett, regional historian with the Bethel Historical Society, states that he has never seen any Enneking painting of the covered bridge itself, although there are several of the general locality.

<sup>16</sup> He has been overlooked in part because he left no "paper trail" of patents and technical articles. Also, his death in 1859 was so long ago that details of his life were no doubt forgotten long before the rise of interest in family history of the early twentieth century. The sole volume on Paddleford history at the New Hampshire State Library describes various lines of Enfield origin, but has nothing on Peter Paddleford.

<sup>17</sup> James R. Jackson, *History of Littleton, New Hampshire* (Littleton: Town of Littleton, 1905). See Vol. 2, pp. 4, 295; Vol. 3, p. 369.

<sup>18</sup> Gaetan Forest, "Des projets audacieux sur la rivière des Prairies" *Le Pont'âge* 5, no. 4 (été 1986): pp. 4-5. The truss

expensive, but the fact that Peter Paddleford was entrusted with a project of this magnitude, in a foreign country, demonstrates the extent of his reputation at the time.

At first Paddleford used various truss designs, including the Long and even the Pratt, but in the 1840s he devised his own plan.<sup>19</sup> Known as the Paddleford truss, it was never patented. It used a multiple-kingpost frame, across which are treenailed wooden counterbraces, which technically are really ties: they are evidently intended to act mainly in tension to relieve some of the stress in the braces, not in compression as in the counterbraces of a Long truss. These ties overlap the panel points and pass into the next panel, where they are mortised through the chords. This feature gives a distinct staggered appearance to the design.

The first known Paddleford truss was Weston's Bridge over the Saco River at Fryeburg, Maine, thought to have been built in 1844.<sup>20</sup> One year later, George W. Thayer of Massachusetts patented a bridge truss with some features that resembled Paddleford's design, but there is no known connection; if anything, Thayer probably copied Paddleford, but no known bridges were built according to his plan. However, there may have been some cross-fertilization of ideas between Paddleford and the Childs brothers of Henniker, New Hampshire. Their 1846 bridge patent used iron rods as counterties, but the concept is similar to Paddleford's. Moreover, their 1853 Rowell's Bridge at West Hopkinton, New Hampshire is an all-wood truss very much like Paddleford's. The nearby 1854 Bement Bridge of Bradford is similar, but the builder is unknown.

Peter Paddleford was active as a millwright as well as a bridge builder and owned a sawmill at South Littleton. He took his oldest son Philip Henry Paddleford into partnership with him in 1835, and retired in 1849, turning over the entire business to his son. Philip by himself built at least one covered bridge, the Aphthorp Bridge of Littleton, and was also partner for a time with another noted bridge builder, Harmon Marcy. Philip's main interest, however, lay in his millwright and manufacturing concerns. His advertisements in the Littleton *People's Journal* in the late 1850s say nothing about being a bridge builder.<sup>21</sup> It has been suggested that the wide

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plan is not specified, but monsieur Forest has ingeniously deduced it from the list of materials, which included a very large number of treenails.

<sup>19</sup> As in the Line Bridge, Rock Island, Québec, 1847. It also had a laminated arch and was described as "Paddleford's Arch and Suspension Rods," but the truss part was clearly a Pratt. As this was only three years after T. Willis Pratt's patent, it shows that Paddleford kept abreast of developments in the bridge design field. See Forest, p. 5 footnote.

<sup>20</sup> John Stuart Barrows, *Fryeburg, Maine: An Historical Sketch* (Fryeburg: by author?, 1938) pp. 133 ff. It would be useful to try to verify Barrows' construction dates from town records and old newspapers, if possible. His replacement dates for bridges are known to be off by a year or two by comparison with State Highway Commission records. Barrows refers to Paul Paddleford, but no one of this name appears in any other source, and it seems clear that Peter is meant. The great builder's genius in taming the Saco with bridges was locally celebrated in nineteenth-century Fryeburg.

<sup>21</sup> Issues from late 1859 of *People's Journal* were examined in hopes of finding an obituary on Peter. Philip's advertisement frequently appears.

distribution of the Paddleford truss may owe much to Philip, but this seems unlikely. The fact that there was no patent would have made it much less attractive to an active businessman like Philip. Instead, the example of Peter Paddleford seems to have been copied directly by local builders, such as Sunday River Bridge's Hiram York.

Peter Paddleford died at Littleton on October 18, 1859, but his truss became the dominant type in covered bridge construction over a wide area extending from Orleans County, Vermont, eastward across northern New Hampshire, and on through Oxford County, Maine. This area evidently corresponds to the region where the builder himself was originally active. Since he could not collect patent royalties he seems not to have promoted it elsewhere, and no examples have been found in other parts of the country.

The Paddleford truss continued to be built until around 1900, and local variants developed. Normally the counterbraces were treenailed across the inside of the frame, and cut only slightly into the posts and braces. Variants included: with counterbraces on the outside of the frame instead of the inside; with counterbraces inside, but cut flush with the inside plane of the posts and braces; with counterbraces terminating just past the posts, and not continuing to the chords. The builder of these examples seems not to have understood the Paddleford principle, while copying the general form.

All Paddleford trusses have overhung portals. The top chord is longer than the rest of the frame because it must receive the end of the last counterbrace, which goes past the panel point. There are many ingenious ways of framing the end posts, with no one form standard.

### **The Paddleford Portal**

Indeed, a particular style of portal is often associated with the Paddleford truss and is known to have been used by the great builder himself.<sup>22</sup> Sunday River Bridge represents the general profile, but more commonly the rough sheathing was covered with narrow horizontal clapboards. This feature may have been left off Sunday River Bridge because it was not on a well-traveled road, or perhaps because the town was trying to save unnecessary expense after having to build the bridge here twice. The former Bear River Bridge on the main road in Newry (now U.S. Route 2) did have the more usual narrow clapboard finish.

The Paddleford portal had a graceful semi-elliptical entry, and if the roof had a wide overhang,

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<sup>22</sup> On the Line Bridge at Rock Island, Québec, of which there are old postcards. It is sometimes described as an international bridge with Derby Line, Vermont, but in fact was entirely in Québec, although just barely.

as was often the case, the curve of the arch was reproduced in the part under the eaves. Some existing covered bridges showing the portal under several variants include the Flume Bridge of Lincoln, New Hampshire; the Mechanic Street, or Israel River Bridge, of Lancaster, New Hampshire (see HAER No. NH-45); and the Hemlock Bridge of Fryeburg, Maine. Towards the far north of the truss's range a more common portal was substituted.

The Paddleford truss lives on, but its designer has been unjustly neglected. One old account even refers generically to bridges of the "paddle foot" type.<sup>23</sup> Sunday River Bridge of Newry, Maine is a fine memorial to Peter Paddleford as well as to its builder Hiram York, and should continue to stand long into the future.

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<sup>23</sup> Unpublished historical notes on Maine covered bridges prepared by the Daughters of the American Revolution in the 1930s, on file at the Maine State Library in Augusta. The reference was to Andover, Maine.